

REMARKS/ARGUMENTS

The applicant would like to acknowledge, with thanks, the Office Action that was mailed on May 9, 2006. This Amendment and Response is responsive to the May 9, 2006 Office Action.

REJECTIONS UNDER 35 U.S.C. § 112

Claims 1, 19, 26 and 44 stand rejected for the specification, drawings and claims filed on 12/05/2001 not showing the features that the first client and second client can use a channel concurrently. In addition, the feature that the first client and second client use the same time slot and same channel concurrently is rejected for being new matter. Claims 2, 7-10, 17, 20-25, 27, 32-37, 43-43, 45, 50-55 and 60-61 are dependent upon claims 1, 19, 26 and 44 and are thus the same rejections are applied to these claims also. For the reasons that will now be set forth, Applicant requests withdrawal of this rejection because the features of the first client and second client can use a channel concurrently and/or the first and second client can use the same time slot are disclosed in the original specification as will be illustrated below.

The original specification discloses in Fig. 2A a wireless network 100 that includes adjoining basic service areas (BSAs), BSA1 and BSA2 having at least a portion of channel overlap (i.e. frequency and spatial)" (page 5, lines 10-11, originally labeled as lines 14-15; note Applicant has noticed that the originally filed application used line numbering wherein line 1 was labeled as line 5, line 6 labeled as line 10, etc., therefore applicant will refer to both the real line number and the line number as shown on the original specification to aid in finding the subject matter recited herein).

Each BSA includes an access point 110a, 110b that communicates with clients 114a, 114b respectively. A management system 120 is employed to connect the AP's 110a, 110b to the network backbone 130, in order to define a macro service area (MSA). In a MSA, the management system 120 controls the BSA's so as to minimize co-channel interference. In a MSA, the management system 120 instructs the AP's 110a, 110b to regulate client access in an efficient manner ... An MSA can manage many network variables including time division, buffering, bandwidth, frequency and space

(page 5, lines 13-19, numbered as lines 17-23). In order to coordinate and prioritize network traffic from a number of clients in different BSA's, the algorithm of the management system 120

operates with a goal function to optimize a desired network metric (page 6, lines 3-5 originally labeled lines 7-9). “In operation the algorithm would determine the clients that can be on the air at the same time by observing previous network packet collision history and adjust the client to specific time slots” (page 6, lines 20-22, numbered as lines 24-26 on the original specification).

The original specification also discloses that the system can manage time and space using an adaptive antenna. Using an adaptive antenna, “each AP could be simultaneously accessing clients by managing space via an adaptive antenna, with respective client time division multiple accesses on each AP selected to avoid simultaneous access between potentially interfering clients” (page 7, lines 4-7, numbered as lines 8-11 of the original specification).

Referring to page 7, lines 8-12 (numbered as lines 12-16 in the original specification), “[i]n another case, the algorithm would use packet angle-of-arrival information to determine which particular clients could access the channel at the same time using an adaptive antenna array and beam/null forming methods. (Beam/null forming is the computation of orthogonal (non-interfering) antenna array patterns which can be used by the AP to place more than one client on the channel at the same time on the same frequency.)”

Moreover, referring to page 8, lines 11-14 (numbered as lines 15-18) it is disclosed in the original specification that more than one client can access the same TDMA time slot “by monitoring the positions for a given placement of AP’s and clients for a desired type of antenna technology, there will be a finite number of topological arrangements that can be constructed that permit, on average, the AP’s in the network to allow network access more than one client per TDMA time slot (page 8, lines 11-14, numbered as lines 15-18 on the original specification).

Finally, the original specification not only teaches that more than one client can access a channel at the same time, but that by using spatial management, more than one AP can access the same channel at the same time. Referring to page 12, line 20 (numbered as line 24 in the original specification) – page 13 line 1 (numbered as line 5), “it is also possible to control frequency and space if more complicated network architectures are admitted, particularly if adaptive directional antenna control is provided at the AP’s. This would be especially useful when all BSA’s within a given MSA must be on the same frequency. In this case, “spatial domain multiple access” (SDMA) would be possible and would permit more than one AP access to the channel at a time.”

In addition to the specification, the following claims are from the original application as filed which are directed to the subject matter for more than one client accessing a channel at the same time as well as more than one client accessing the same channel during the same time slot:

14. The method of claim 1 wherein the step of monitoring comprises the step of observing the positions of each access point and respective clients, and wherein the step of regulating comprises the step of controlling network access according to a network access topology selected to allow service to more than one client per TDMA time slot.

34. The apparatus of claim 33 wherein the means for managing space comprises means for simultaneously managing time by selecting client time division multiple accesses on each access point to avoid simultaneous access between potentially interfering clients.

39. The apparatus of claim 26 wherein the means for monitoring comprises means for observing the positions of each access point and respective clients, and wherein the means for regulating comprises means for controlling network access according to a network access topology selected to allow service to more than one client per TDMA time slot.

57. The computer program product of claim 44 wherein the instructions for monitoring comprises instructions for observing the positions of each access point and respective clients, and wherein the instructions for regulating comprises instructions for controlling network access according to a network access topology selected to allow service to more than one client per TDMA time slot.

Thus, as can be observed from the foregoing, the original specification as filed discloses several examples where a first and second client can access a channel at the same time (i.e., concurrently) and that the first and second client can access the same time slot and same channel concurrently. For example, on page 6 of the original specification it is disclosed that by observing network packet collision history, it can be determined which clients can be on the air at the same time. As another example, the original specification discloses that by using an adaptive antenna array, multiple clients can use the same channel at the same time (page 7). Furthermore, by using beam/null forming methods can be used to place more than one client on

the channel at the same time on the same frequency. (*Id.*). Furthermore, by monitoring positions of APs and clients, AP's can allow network access to more than one client per TDMA slot (page 8). Not only does the specification teach more than one client can access the same channel at the same time, but so can more than one AP (paragraph bridging pages 12 and 13). Therefore, for the reasons just set forth, the subject matter that a first and second client can use a channel concurrently and that the first and second client use the same time slot and same channel concurrently as recited in claims 1, 19, 26 and 44 is not new matter and is taught in the originally filed specification. Claims 2, 7-10, 17, 20-25, 27, 32-37, 43-43, 45, 50-55 and 60-61 are dependent upon claims 1, 19, 26 and 44 and stand rejected for the same reasons as claims 1, 19, 26 and 44, therefore withdrawal of the rejection of these claims is also respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 102 AND 35 U.S.C. § 103

The examiner applied the same rejection as the previous office action because the examiner considered the subject matter in independent claims 1, 19, 26 and 44 to consist of new matter. As has been set forth above, the subject matter the examiner considered to be new matter was present in the originally filed application. To reiterate, claims 1-11, 13-23, 26-36, 38-54 and 56-61 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0067903 to Jorgenson (hereinafter Jorgenson). Claims 12, 37 and 55 stand rejected under 35 U.S.C. § 103 as being obvious based on Jorgenson and U.S. Patent No. 6,456,608 to Lomp (hereinafter Lomp). Withdrawal of these rejections is requested for reasons that will now be set forth.

Independent claims 1, 19, 26 and 44 recite a method (or apparatus or computer program product configured for implementing the method) for controlling network access of a first access point having a respective first plurality of associated clients and a second access point having a second plurality of associated clients. The method comprises determining a first client selected from the first plurality of clients and a second client selected from the second plurality of associated clients that can use a channel concurrently. A time slot is scheduled with the first access point for the first client and the second access point for the second client wherein the first client and second client use the same time slot and same channel concurrently. In other words, an aspect of the present invention is that it enables multiple access points operating on the same

channel to communicate with clients concurrently by determining which clients can be on the air at the same time.

By contrast, Jorgenson uses two schedulers at the wireless base station (paragraphs 398-399). The first scheduler for uplink frames & the other for downlink frames (*Id.*). The scheduler in Jorgenson analyzes packet headers to determine whether a packet belongs to a new or existing flow (paragraph 394). The scheduler then prioritizes by class (paragraph 395). Thus, Jorgenson does not disclose a method (or apparatus) coupled to a plurality of access points that determines which clients can concurrently communicate with the access points.

In addition to the reasons set forth above, claims 8-10, 33, 34, 36, 51, 52 and 54 recite controlling the direction of an adaptive array antenna associated with one of the group consisting of the first access point and second access point to allow simultaneous access between the first client and second client. This aspect allows clients associated with access points in close proximity to communicate with their respective access points at the same time. Nothing in Jorgenson discloses this.

In addition to the reasons set forth above, claims 7, 32 and 50 recite adjusting the time slots responsive to packet collision history. Jorgenson only discloses adjusting scheduling flows based on priority and does not adjust based on packet collision history.

The aforementioned deficiencies of Jorgenson are not remedied by any teaching of Lomp. The examiner relies on Lomp to teach using beam forming with an orthogonal antenna array, which does not remedy the aforementioned deficiencies of Jorgenson.

CONCLUSION

For the reasons just set forth, withdrawal of the rejections under 35 U.S.C. § 112, 35 U.S.C. § 102 and 35 U.S.C. § 103 is requested, and the claims as now pending are not

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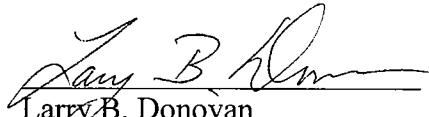
Amendment/Response dated August 7, 2006

Response to Office action dated May 9, 2006

anticipated or obvious in view of the cited prior art. Therefore, a Notice of Allowance is earnestly solicited. If there are any fees necessitated by the foregoing communication, the Commissioner is hereby authorized to charge such fees to our Deposit Account No. 50-0902, referencing our Docket No. 72255/02776.

Respectfully submitted,

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